REMARKS

Support for the amendment to claim 1 is found at page 10, lines 25 and 26 and page 13, lines 13 to 20. Support for new claims 22-24 is found at page 10, lines 18-27. Support for new claims 25 and 26 is found at page 11.

Claims 14 and 17 were objected to for use of the word "costing" and "35," respectively. The amendments to claims 14 and 17 are believed to overcome these rejections as to form, not substance, of the claims.

Claims 12 and 14 were rejected under §101 based on claims 12 and 14 in U.S. 6,051,310. The amendment of claim 1 is believed to overcome the §101 same-type double patenting rejection.

Claims 1-21 were rejected under §112, first paragraph, with respect to the "abrasion-resistant coatings" for the reasons stated in the office action.

It is pointed out that such coatings are well known by the skilled person. We further note that a definition of abrasion-resistant coatings is given in the specification page 10, lines 14 to 16 ("...a coating which improves the abrasion resistance of a layer stack as compared to the same layer stack without the abrasion-resistant coating."), as well as other passages such as the very passages cited by the examiner, are believed to provide adequate support for the original claim language. The amendment is proposed for purposes of compact prosecution.

In any event, this §112 rejection is believed to have been overcome by the amendment to claim 1, which specifies that the abrasion-resistant coating is a silicone based coating or an acrylic based coating.

The office rejected claims 1-21 as being unpatentable over Taniguchi et al. (U.S. Patent No. 4,904,525). This rejection is traversed for the following reasons.

The Taniguchi et al. reference (the "Reference") discloses an anti-reflection optical article which comprises a substrate such as polystyrene, polycarbonates; a hard coating; a top film of fluorosilicone having an average Fe/Si ratio ranging from 0.02 to 10; and a second fluorine-containing organopolysiloxane-based film (1nm to 30nm thickness) having a F/Si ratio of less than 80% than that of the top film.

The second fluorosilicone film is said to be an antistatic film.

In the rejection, the office assumes that the second fluorosilicone film acts as an anti-reflective film and the fluorosilicone top film as an impact-resistant primer interlayer. However, as demonstrated in the grandparent case and as explained herein, the second fluorine-containing organopolysiloxane based film of the Reference cannot be considered as an anti-reflective layer.

The stackings shown in annex 1 were modelized by applicants using commercial software "Film Star Design" of FTG Software Associates-Princetown New Jersey. Annex 1 includes the Declaration of ROISIN and related information that were submitted previously in the grandparent case.

Calculations were made using a light beam having an incident angle of 15°.

The modelized stacking were the following:

Stacking 1: corresponds to a reference stacking comprising a substrate and a hard coat according to example 1 of Taniguchi et al. but without the anti-reflective coating.

Stacking 2: corresponds to the stacking of example 1 of Taniguchi et al. and comprises substrate / hard coat / top film (anti-reflective film).
This stacking is said to have an experimental transmission of 96.1%.

Stacking 3: comprises substrate / hard coat / top coat of fluorosilicone (anti-reflective coating) / second fluorine containing organopolysiloxane based film (antistatic coating). Three thicknesses of the antistatic film were considered, namely 1 (a), 15 (b) and 30(c) nm.

Stacking 4: comprises substrate / hard coat / second fluorine containing organopolysiloxane-based film (antistatic film). Three thicknesses of second fluorosilicone film were considered, namely 1nm (a), 15nm (b) and 30nm (c).

Refractive index value of the second fluorosilicone film was estimated from f/Si ratio of 0.04/1.

<u>Results:</u>

For each stacking, mean reflexion values R_m (per face) (for the entire visible specturm 400-700nm) and mean transmission value T_m were determined assuming that the two major faces of the substrate were coated with the corresponding layers.

	1	2	3a	3b	3c	4a	4b	4c	S
R_m(%)	5.06	1.30	1.31	1.63	2.28	5.06	4.85	4.24	5.47
T_m(%)	89.87	97.40	97.38	96.74	95.43	89.87	90.30	91.52	89.06

S corresponds to an uncoated substrate.

For the skilled person, a coating which does not lower the reflexion value (per face) to at least 2.5% is not considered as an antireflective coating.

In view of the above results, it is submitted that the second fluorosilicone film (antistatic coating) cannot be considered as an antireflecting coating since all stackings 4) include only the hard coat and the second fluorosilicone film have R_m values per face (namely at least 4%) much higher than 2.5% which is the upper limit value for considering the coating as having antireflective properties. Furthermore, stacking 3 shows that the presence of the second

fluorosilicone film (antistatic) deteriorates the antireflective properties of the underneath antireflective top coating.

The fact that for stacking 2 (example 1 of the reference) the calculated value of T_m (97.4%) is higher than the experimental value (96.1%) given in the Reference should not be surprising. In fact, there always exists slight variations since the actual stacking is usually not perfect contrary to modelized stackings. Further, modelized calculations were effected using an incident angle of 15° and integrating over the full 400-700nm range. In the Reference, other conditions may have been used.

Nevertheless, the above stacking modelization gives a meaningful comparison of the properties of the different stackings.

In conclusion, the antistatic second fluorosilicone film of the Reference is not an antireflective coating. In the Reference, the antireflective properties are attributable to the first fluorosilicone top coat.

Consequently, there is no disclosure or suggestion in the Reference of an impact-resistant primer layer between a hard coat and an antireflective coating.

Furthermore, the skilled person cannot find in the Reference any motivation for introducing between a hard coat and an antireflective coating an intermediate impact-resistant primer layer.

It should be kept in mind that the data in the ROISIN Declaration is submitted to show that Taniguchi et al. does not render the particular stacking arrangement recited in the claims obvious. The stacking arrangement in Taniguchi et al. does not provide the anti-reflective properties inherent in the claimed arrangement. It is thus submitted that the Declaration provides objective evidence that the stacking arrangement of the claimed invention provides properties not taught or suggested by Taniguchi et al. Namely, Taniguchi et al. fails to teach or suggest the

claimed stacking arrangement as well as the antireflective properties associated with the claimed arrangement. Furthermore, the skilled person cannot find in Taniguchi et al. any motivation for introducing an intermediate impact-resistant primer layer between a hard coat and an antireflective coating.

In view of the foregoing, the rejection under §103 should be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that the claims are in condition for allowance. Accordingly, favorable reconsideration and Notice of Allowance are courteously solicited.

No extension of time is believed to be needed in connection with the filing of this paper. However, if an extension is deemed to be needed, please consider this paper to be a request for such extension and deduct any required fee from deposit account 10-1205.

Should any fees under 37 CFR 1.16-1.21 be required for any reason relating to the enclosed materials, the Commissioner is authorized to deduct such fees from Deposit Account No. 10-1205. The examiner is invited to contact the undersigned at the phone number indicated below with any questions or comments, or to otherwise facilitate expeditious and compact prosecution of the application.

Respectfully submitted,

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APPENDIX

MARKED UP VERSION OF AMENDMENTS

AS REQUIRED BY RULE 121

1. (Amended) Ophthalmic lens [consisting of] comprising a substrate made of organic glass, of an abrasion-resistant coating, of a layer of impact-resistant primer and of an [inorganic] anti-reflective coating, [characterized in that] wherein the surface of the [said] substrate is covered with the abrasion-resistant coating and in that the impact-resistant primer layer is inserted between the [said] abrasion-resistant layer and the anti-reflective coating, and wherein the abrasion-resistant coating is a silicone based coating or an acrylic based coating.

2. Lens according to claim 1, wherein the substrate is chosen from

(I) the glasses obtained by polymerization of diethylene glycol bis(allyl carbonate);

(II) the glasses obtained by polymerization of acrylic monomers derived from bisphenol A;

(III) the glasses obtained by polymerization of allyl monomers derived from bisphenol A.

3. Lens according to claim 1, wherein the substrate is chosen from:

(A) the glasses obtained from poly(methyl methacrylate);

(B) the glasses obtained from polystyrene resin;

(C) the glasses made of resin based on diallyl phthalate.

4. Lens according to claim 1, wherein the impact-resistant interlayer has an intrinsic Bayer value lower than or equal to 2, at a thickness of 3 μm.

5. Lens according to claim 1, wherein the impact-resistant primer is a thermoplastic or heat-curable polymer composition which has a solids content ranging from 5 to 20% by weight relative to the total weight of the primer composition.

6. Lens according to claim 1, wherein the thickness of the impact-resistant interlayer in the cured state is between 0.2 and 1 μm.

7. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a thermoplastic polyurethane resin obtained by reaction of a diisocyanate with a compound comprising a reactive hydrogen at each end.

8. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a heat-curable polyurethane resin obtained by reaction of a blocked polyisocyanate and of a polyol.

9. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a copolymer of acrylic and/or methacrylic monomers and of aromatic vinyl compounds.

10. Lens according to claim 1, wherein the composition of the impact-resistant primer consists of a polysiloxane.

11. Lens according to claim 10, wherein the composition of the impact-resistant primer contains in a solvent medium, one or a number of silane hydrolysate(s) with an epoxy group containing at least one Si-alkyl group and containing no fillers.

12. Lens according to claim 1, wherein the hard abrasion-resistant coating is obtained by curing a composition containing:

a) colloidal silica which has a mean particle diameter of between 1 and 100 mμm;

b) a solvent;

c) a hydrolysate or a mixture of hydrolysates of silane compound(s) of formula:

$$R^1 - \overset{\displaystyle R^3{}_a \atop |}{Si} - (OR^2)_{3-a} \qquad (\alpha)$$

in which:

R^1 demotes an organic group containing an epoxy group;

R^2 is a hydrocarbon radical which has 1 or 2 carbon atoms;

R^3 is a hydrocarbon group which has from 1 to 4 carbon atoms, and a is 0 or 1 in value.

13. Lens according to claim 1, wherein the thickness of the abrasion-resistant layer, in the cured state, is between 1 and 15 μm.

14. (Amended) Lens according to claim 12, wherein the composition of the abrasive-resistant [costing] coating has a colloidal silica content of between 0 and 40% by weight in the solids content.

15. Lens according to claim 1, wherein the anti-reflective coating consists of a mono- or multiplayer film based on dielectric materials and deposited by vacuum deposition.

16. Lens according to claim 1, successively including:

a) a substrate made of glass obtained by polymerization of diethylene glycol bis(allyl carbonate);

b) a hard abrasion-resistant coating obtained by curing a composition containing, in methanol, colloidal silica and a hydrolysate of γ-glycidyloxypropylmethyldiethoxysilane;

c) an impact-resistant interlayer obtained by curing a composition containing, in methanol, a hydrolysate of γ-glycidyloxypropylmethyldiethoxysilane or of γ-glycidoxypropyltrimethoxysilane;

d) a multiplayer anti-reflective coating.

17. (Amended) Lens according to claim 1, successively including:

a) a substrate made of glass obtained by polymerization of diethylene glycol bis (allyl carbonate);

b) an abrasion-resistant coating obtained by curing a composition containing, in methanol, colloidal silica and a hydrolysate of γ-glycidoxypropylmethyldiethoxysilane;

c) an impact-resistant interlayer obtained by [35] curing a composition containing 4,4'-dicyclohexylmethane diisocyanate and polyethylene glycol;

d) a multiplayer anti-reflective coating.

18. Process for the manufacture of an ophthalmic lens as defined in claim 1, comprising:

- applying the abrasion-resistant coating onto the surface of the organic glass substrate;
- depositing the layer of impact-resistant primer is deposited onto the abrasion-resistant layer; and
- depositing the anti-reflective coating is onto the impact-resistant primer.

19. Process according to claim 18, wherein the abrasion-resistant layer and the layer of impact-resistant primer are deposited by centrifuging, by dipping or by spraying and in that the anti-reflective coating is applied by vacuum deposition or sol-gel deposition.

20. Process according to claim 18, wherein the abrasion-resistant and impact-resistant primer layers are pretreated using a surface activation treatment by a chemical or physical route.

21. Process according to claim 20, wherein the surface activation treatment is an alkaline chemical etching, an oxygen plasma treatment or an ion bombardment in a vacuum vessel.